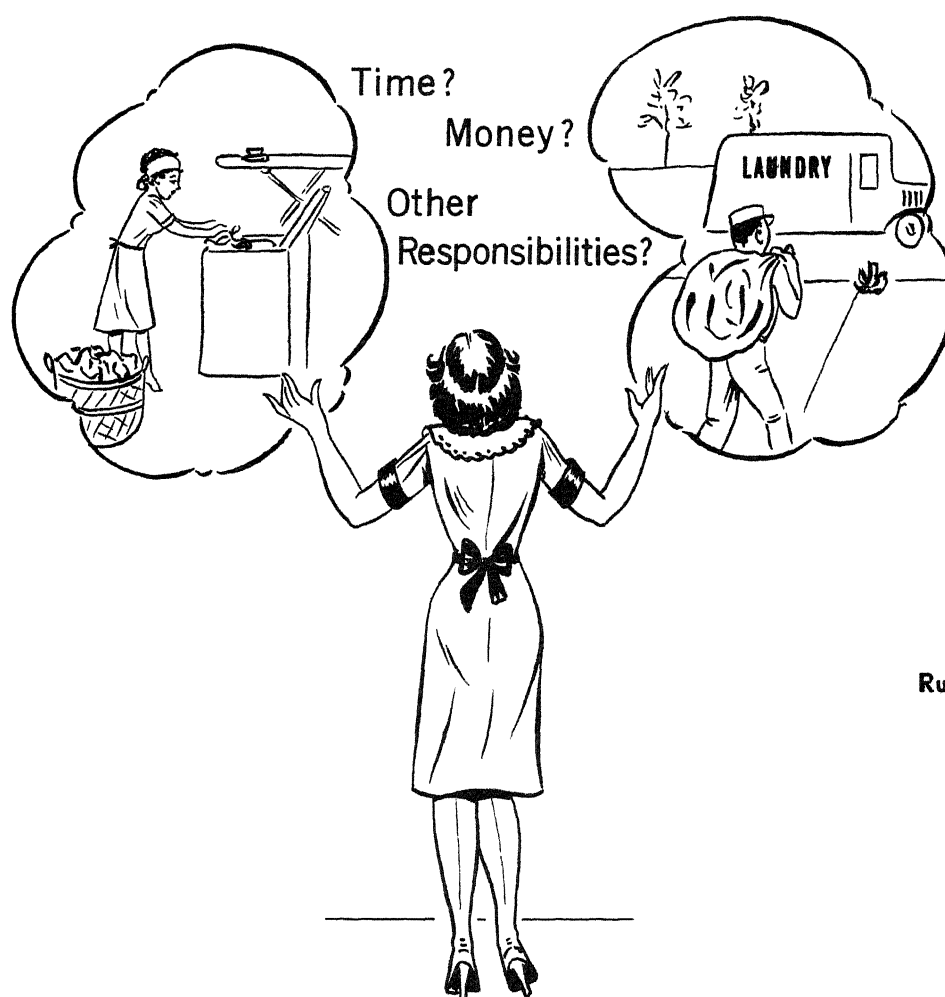


Family Laundering at Home and With Commercial Services



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Introduction and Purpose

Families have made extensive use of commercial services in recent years to assist them in their homemaking responsibilities. Studies have shown, however, that laundering has continued to be done in the home to a greater degree than many other household tasks.¹ Tradition, sizable investments in durable equipment, preference for the home product, or lack of knowledge about and experience with the various available services may explain why laundering has largely been done at home.

The purpose of this study was to compare the money costs, uses of time, and reactions of a selected group of families as they laundered at home and with various commercial services. It was anticipated that such information might help to clarify the choices available to families in laundering.

Method

Participants

The cooperation was sought of families living in or near Columbus who 1) were similar in number and in ages of children, 2) had only limited previous experience with commercial services, 3) used different combinations of the major home laundering appliances, and 4) were willing to participate over at least a 12-week period. To be able to compare any differences in adjustments due to the employment of homemakers, families

¹For example, Knoll reported that 84 percent of the urban families in her study did most of their laundering at home. Less than 50 percent of these same families made most of either the clothing or baked goods used. Knoll, Marjorie. Economic Contributions and Receipts of Household Members. Cornell Agr. Exp. Station Memoir 350. October 1957. p.11.

were also needed with both full-time and employed homemakers.

Families were contacted through the assistance of home economics teachers, the county home extension agent, local extension groups, local community leaders and by word of mouth. The study was begun with 26 families, but two found it necessary to drop out by the second week. Of the 24 families who carried through for the 12-week period, 9 of the 16 using automatic and 4 of the 8 using non-automatic washers also had automatic dryers (table 1). Eight of the 24 homemakers were employed outside the home half-time or more.

Similarity in number and age of children was desired in order to keep laundering problems as nearly the same as possible. Of the 61 children, 47 were between 2 and 12 years of age. The three families with a child using diapers were asked not to include diapers in the laundry to be done commercially.

All but 3 of the 24 families had between 4 and 6 family members, the average size being 4.6.

The husbands' occupations were varied, including a machinist, a plumber, a printer, a rural mail carrier, engineers, supervisors and professional personnel. No farm families were contacted. The husbands' weekly incomes were from \$80 up to \$125 for 8 families and \$125 or more for 16 families. The 8 employed homemakers worked outside the home between 5 to 8 hours daily and reported additional earnings between \$30 to \$100 weekly.

Fourteen of the 24 families reported having no previous information about or experience with commercial services. Of the six who had previous experience, five expressed satisfaction.

Procedures

The 24 families participated over the 12-week period from February

16 to May 10, 1959. This period was divided into four different laundering phases three weeks in length.

Phase I. All laundering done at home as usual.

Phase II. Flat work to be sent to a commercial laundry to be finished the rest done at home as usual.

Phase III. All items to be sent to a commercial laundry with flat work and shirts finished and the rest "rough" or "fluff" dried.

Phase IV. All items to be sent to a commercial laundry to be finished

Only commercial laundries offering complete service were used. The families were reimbursed for all expenses incurred from the use of commercial services.

Laundering as interpreted here included the total process from the gathering, sorting, treating and washing of soiled articles to the drying, ironing, and putting away of the clean ones.

All families were interviewed before Phase I began. Specific information about the families, their facilities and usual laundering procedures, was obtained at this time. A complete explanation was given of the plan of the study so that the families might appreciate the importance of their part in it. The forms on which records were to be kept were also explained in detail, each homemaker being supplied with a filled-in example of each record form for illustrative purposes.

The records to be kept by the families included this information regarding each laundering day or period: time spent by all family members at any aspect of laundering, length of time machines were in operation, number of loads washed at home, times tubs were filled, items washed at home or sent to commercial laundry, supplies used, method of drying, items ironed, and cost of commercial service.

Each family was visited before the end of the second week of each phase of the study. At this time, any questions the homemaker had about procedures in the current phase were answered. The homemaker was asked to fill in an evaluation sheet rating her satisfaction with the quality of laundering during the previous phase. Plans were also made for the next phase of the study. Additional visits or telephone calls were made as special problems arose.

A final interview was also held with the cooperating families at the completion of the study to obtain information on their general reactions as participants.

The families themselves made all arrangements with the commercial laundries. They made all calls to inquire about service, made their own choice of which laundry to use, handled all problems that arose, and paid the laundries directly for the service obtained. Although they knew they would be reimbursed, the homemakers appeared to be as careful in comparing prices and services as though they were assuming the cost.

No commercial establishment had been informed about the study ahead of time. After all phases were completed, visits were made to the commercial laundries to explain the study and its purposes.

Cost calculations

Ownership of equipment

Each family's individual expenses were represented insofar as possible in calculating costs of owning and maintaining equipment.

Depreciation. The original cost of all equipment was depreciated over a 10-year period, this being the service-life expectancy for urban owners of automatic washing machines reported by Jaeger and Pennock in

1957.² Installation charges were included in the original cost of all appliances. The automatic washing machines had been used from 1 to 13 and the non-automatics from 1 to 20 years. The average age was 4.6 years for automatic and 8.2 years for non-automatic washing machines, 4.2 years for the automatic clothes dryers, and 5.0 years for irons (both dry and steam). The three ironers had been owned 7, 8 and 18 year

No estimate was included for the investment in such related facilities as hot water heaters and mechanical water softeners. The portion of the investment in such facilities to allocate to laundering would have been difficult to establish for all families. Many of the families could not give a price or age for their water heaters because installations had been made previous to the purchase of their homes.

Omission of a charge for investment in such permanent facilities as water heaters and mechanical softeners (and of a charge for the family's labor) does limit the comparability of home and commercial laundering costs. It is likely, on the other hand, that investments would be made in these permanent facilities anyway. The additional cost of owning and operating equipment for laundering at home as compared to using commercial services is probably of particular concern to families and represents the comparison presented here. To cover all costs of home laundering, an appropriate charge would need to be added by the families for their labor and for the use of permanent facilities.

Service and repairs. Information was obtained from the families on service costs and expenses for repairs since their current equip-

²Jaeger, Carol M. and Pennock, Jean L. Household Service Life of Appliances. Journal of Home Economics. Vol. 49, December, 1957, p. 787.

ment had been purchased. Three owners of automatic and also of non-automatic washing machines reported no maintenance costs, while 8 of the owners of dryers reported no such expenses. Since no adequate basis for pro-rating maintenance costs over the life of the equipment could be derived from other studies, the average of the expenses to date for the period each appliance had been owned was simply charged as an annual expense of these families for service and repairs.

Interest. An annual interest charge of 3 percent compounded semi-annually was applied to the original cost of equipment in calculating the interest foregone annually over its assumed life of 10 years.

Current Operation Expenses

Expenses connected with the use of the washing, drying, and ironing equipment, water and other supplies were included in the home costs of laundering.

Equipment. To arrive at a cost for operation of the equipment, assumptions were made about the fuel consumption of the various types of machines.³ For each hour of operation reported by the families, these wattages were used for electrical appliances: automatic washing machine - 500; non-automatic washing machine - 350; electric dryer - 4,000; gas dryer - 300; steam or dry iron - 1,000; steam or dry iron and ironer - 1,200. For the gas dryer, 15 cu. ft. of gas per hour of operation was assumed.

³Dr. Elaine K. Weaver's assistance was invaluable here as well as in all other aspects of the study. The fuel consumption rates for electric and gas dryers are essentially those reported in her - bulletin (co-author Margaret Thomas), Automatic Drying Vs. Outdoor Drying. Ohio Agr. Exp. Sta. Research Bull. 734. August 1953. 36 pp.

Each family's average fuel rates over the period of the study were used in calculating operating expenses. Differences in costs from phase to phase should reflect differences in the uses made of the machines by the families.

Water. Costs related to the use of water were those for: the total amount used in laundering when obtained through the local water system (6 families used water from their own wells); softening of the total amount used by the 4 families having their own mechanical softeners, and the cost of heating the hot water used.

For each family, the total amount of water consumed per load was established by reference to available information on specifications or measurement of tub capacities of the machines or similar facilities in use. Adjustments were made when suds-saving or water saving features or practices (as with non-automatics) were used. Each family's cost per gallon for water was used in calculating the expense. Water used in hand washing was not estimated.

The four families having water softeners used water from their own wells and lived in a hard water area. A cost was assumed of 30¢ per 1000 gallons of softened water.⁴

The families indicated in their first interview their usual pattern in relation to the loads of clothes washed in water of hot or medium temperature. For the automatic washing machines, the gallons of hot water needed for loads requiring hot temperatures were obtained from the specifications; gallons for the medium temperature loads were computed by reducing the hot water requirement by one-half of the tub capacity.

⁴This would be equivalent to softening water of 25 grains hardness (typical for the area), using 6 pounds of salt per 10,000 grains at \$2.00 per 100 pounds of salt.

Gallons of hot water for the hot and medium temperature non-automatic washer loads were counted as full and half-tub capacity, respectively, and all tubs of rinse water were also considered to be medium temperature or equal mixtures of hot and cold water.

The water was assumed to be raised to 140°F. from a temperature of 50°F., the temperature around which water was delivered to consumers during the period of the study according to personnel of the local water system.

The fuels used by the families in heating their water were electricity, natural gas, and oil. The ratio of B.t.u.'s used, gas to electricity, was 1.7 to 1.⁵ On this basis, 2.42 kilo-watt hours of electricity and 14.05 cubic feet of natural gas were needed to raise 1,000 gallons of water 1°F. These figures were applied to the families' own utility rates and to the gallons of hot water used and raised 90°F. in calculating the costs of heating water. The cost for oil was calculated to be 30 percent higher than gas.⁶

Supplies. Total quantities of the various supplies used during each phase of the study were obtained from the records families kept. All types of supplies were included - soaps and synthetic detergents, bleaches, package water softeners, fabric conditioners, and the like. These supplies were priced in stores serving the area in which the families lived and costs per cup were charged accordingly.

Launderette Phase

Six of the 24 families cooperated for an additional two weeks by

⁵McCracken, Earl C. and Beveridge, Elizabeth. Cost of Electricity and Liquefied Petroleum Gas. Agr. Information Bull. No. 141, USDA Wash., D.C., August 1955. p. 6.

⁶Local dealers in oil burners estimated that gas ranged from 20-40 percent cheaper than oil for heating water.

using the services of laundrettes, the self-operated or limited-service establishments where laundry can be taken to be washed and/or dried. The report on the information obtained from these six families in using laundrettes will follow the report on the four major phases. The families kept records similar to those of the previous 12-week period.

One of the six homemakers was employed outside the home, four families had non-automatic washers and two had dryers. The families varied in size from three to six members, the average being 4.5.

Results

Cost Comparisons

For the families in this study, the weekly cost of owning equipment to launder at home averaged 98 cents (table 2). Washing and drying equipment was nine-tenths and ironing equipment one-tenth of the total expense. The original cost of automatic washers ranged from \$169 to \$300, and for non-automatics from \$70 to \$229 (except for one non-automatic washer received as a gift). The original cost of dryers ranged from \$140 to \$250.

The families who owned automatic washers and dryers had average weekly investments in each of 39 cents, compared to 25 cents for those having non-automatic washing machines.⁷ Of the major appliances, dryers cost the least to maintain - 2 cents weekly. The expense of service and repairs for automatic washers was 10 cents weekly.

⁷This average investment of essentially \$200 reflects the time and circumstance under which the families in the study made their purchases. With the same 10-year period of depreciation, individual families with an investment of \$300 in an appliance would have a weekly cost of 57 cents.

The operation cost for all families during the phase of the study when all laundering was done at home was \$1.02 weekly, on the average (table 3). Sending out the flat work to be washed and finished (Phase II) reduced the operation costs by one-third, and sending out all articles to be washed with just the shirts and flat work finished (Phase III) reduced the cost by another one-third. Even though the families were requested to send all laundry items out to be finished during Phase IV, the final period of the study, the families did not do so enough to reflect any difference in the operation cost of laundering at home from Phase III to Phase IV.

The use of diapers by three families throughout the study furnished a base for laundering at home that was expected to continue through the four phases of the study. Many additional items were not sent by the families for commercial laundering in Phase III and IV. These were predominantly underclothing, socks, blouses and dresses. The families either considered the fabrics or finishes to be inappropriate for commercial methods or they found it too inconvenient to get along until the part of the supply sent to the laundry was returned.

Although the operation costs for the employed homemakers averaged somewhat less than for the full-time homemakers in doing all laundering at home (Phase I), any differences from phase to phase in making use of additional commercial services were minor.

The largest expense of doing all laundering at home was the operation of the dryer, the weekly cost being 53 cents for the families having one. Supplies were 36 cents, the next largest weekly expense. The weekly cost in Phase I of obtaining water through the community water system averaged 13 cents. The additional expense for heating the water was 15 cents. The operation of the washing machines was a small part of the

operation expense in all phases of the study. The cost of ironing was also relatively low.

By Phase III, when all laundry was to be sent out to be washed and dried, the weekly cost of operating the dryer was reduced to 11 cents which was only 20 percent of the cost of drying when all laundering was done at home. There was little difference between Phases III and IV for all items of home operation expense.

When equipment ownership and operation expenses were added together, the total weekly cost per family of doing all laundering at home was \$2.00 (table 4). Compared to Phase I, this combined cost was reduced by about one-sixth in Phase II and by one-third in Phases III and IV.

For Phase I, when all laundering was done at home, the cost of using an automatic washing machine without a dryer was two-thirds higher than using the non-automatic washer without a dryer. This comparison reflects the somewhat higher original and operational cost of the automatic relative to the non-automatic washing machine.

The cost of washing each load of clothes was 22 cents in Phase I, the average number of loads for each family being 9.1 weekly. The cost for each load for the families with automatic washing machines and a dryer was 33 cents compared to 12 cents for those families with a non-automatic washing machine and no dryer.

The cost per family of using commercial services was: for finished flat work (Phase II), \$3.13 weekly; for the rough dry, finished flat work and shirt combination (Phase III), \$6.22 weekly; and for the finishing of all items (Phase IV), \$11.13 weekly. The combined cost of home and commercial laundering was higher, therefore, in the later phases of the study than when all laundering was done at home. The largest increase in costs occurred between Phases III and IV when items

other than flat work and shirts were also finished commercially. In relation to Phase I, the combined costs for Phases II, III, and IV respectively were somewhat more than twice, three times, and six times as high.

As with comparison of costs by major equipment owned, there was no consistent relationship of home and commercial laundering costs to employment of homemakers (table 5).

Time Comparisons

The time used by all family members in doing all laundering at home averaged 5.1 hours weekly, compared to only 1.9 hours when most of the laundry was sent out to be finished commercially (table 6). The time needed by the families to make use of commercial services averaged .4 hour weekly to send flat work out to be finished. This comparison includes the amount of time used in arranging, gathering, itemizing, transporting if necessary, checking and storing articles laundered commercially. These same activities required 1.1 hours weekly per family in Phases III and IV.

The employment of additional commercial services as the families progressed from Phase I to Phase IV of the study reduced the total weekly time spent in laundering by two hours. Half of this decrease occurred between Phase II and Phase III,

The time used in doing all laundering at home was similar for employed and full-time homemakers, but the time saved by full-time homemakers was less than for the employed homemakers as commercial services were added (table 7). Somewhat more time was used for commercial laundering by employed than full-time homemakers, but not enough to compensate for the decrease in the time used in home laundering.

Ironing was the most time-consuming job in laundering at home, taking one-half of the total time in Phase I (table 8). The difference in the combined time for ironing, washing and drying between Phase I and Phase IV was 2.5 hours weekly, and ironing accounted for the major part of this saving.

Evaluation

After each phase of the laundering study was completed, each homemaker was asked to give her rating of the quality of the laundered items as poor, fair, good, or excellent. Only three conditions were rated high any more often in Phase IV than in Phase I---whiteness, absence of soiled collars and cuffs in colored items, and softness of unironed items (table 9). Fading in colored articles, wrinkles in ironed items, shrinkage, lint and folding were the conditions for which commercially laundered items were most often rated lower than those laundered at home.

Sixteen families patronized only one commercial laundry throughout the study. Two families used the services of 3 different laundries and six families used 2 laundries during the course of the study. In all, the services of 12 different laundries were used. Changes from one laundry to another resulted from some problem or an interest in comparing services.

The families were generally satisfied with the services obtained through the commercial laundries. Four families were dissatisfied with the pick-up and delivery service because it was either not dependable or inconvenient.

Families who called their laundries to report lost articles, to request adjustments in bills, or to question the quality of the service, received prompt attention or satisfactory solutions in all cases but one.

Sixteen families reported that they had regular laundry items that they **did** not send out, even though they had the opportunity. Loss of elasticity in socks and underclothing, dissatisfaction with the way good blouses or dresses were ironed, fading, shrinkage of knit-wear, and concern for special fabrics and finishes were the reasons **given**. On the other hand, 14 of the families reported satisfactory results with items they had hesitated to send out but did so anyway.

All 24 families were satisfied with the finished flat work. Four families reported dissatisfaction with finished shirts due to wrinkles, starching, and soiled collars and cuffs. Seven families reported dissatisfaction with the rough- or fluff-dry items due to odors, the setting of wrinkles into unfolded or unfinished articles, or the necessity to starch certain of these items before ironing at home.

Each family was asked whether or not family members had been affected by the money spent in obtaining the services of commercial laundries. Of the 24 families, 19 reported that adjustments had been necessary to meet the expense even though reimbursements were forthcoming. Certain expenditures were postponed or family members had to sacrifice in order to meet current expenses or the bills which came due.

Twenty-one homemakers did indicate, however, that from their experience in the study they now thought that the use of commercial laundries could be of practical help to them. The opportunity to spend more time with their families was mentioned as a particular advantage for those homemakers employed outside the home. The likelihood of making more use of commercial laundries in times of illness or when "bogged down" with work was frequently mentioned.

Comparisons per item laundered

The families laundered a similar number of items weekly throughout

the period of the study. About two-thirds of the total items were sent out in Phases III and IV (table 10). Due to the fixed charges for investment in equipment, the cost for each article laundered at home was higher during the periods when commercial services were also used than when all laundering was done at home - 2.6 cents in Phase IV compared to 1.4 cents in Phase I. The cost for each item laundered commercially was lowest in Phase III when items other than flat work and shirts were not finished. The combined cost of laundering at home and commercially increased as additional commercial services were used, from 1.4 cents in Phase I to 9.2 cents in Phase IV.

The time used for each item laundered at home was 2.2 minutes in Phase I and was similar for the other periods except Phase III when the average time used was about a minute more per item. Although there is no certain explanation for this difference from the information obtained it could be that either the items retained for laundering at home were relatively more time-consuming or there was some additional handling necessary for the articles fluff- or rough-dried commercially and finished at home. Homemakers mentioned, for example, that they wanted starch in some of the items in Phase III that were washed commercially and unfinished. Adding the starch after the items were returned was an inconvenience. The time used for each item laundered commercially was less than a minute, however. The average time for each item laundered at home and commercially was 1.3 minutes in Phase IV, about one minute less than in Phase I.

Launderette Comparisons

For the six families who made use of the launderettes for two weeks, the weekly time averaged the same as in Phase I when all laundering was done at home (table 11). The washing and drying time

was decreased by half an hour each week when using launderettes, but the families increased ironing time accordingly.

In relation to the loads washed, the launderette costs were higher both in time and money. The cost per load was 50 cents more and the time used increased by approximately 24 minutes (.4 hour). There was evidently a difference in the make-up of the washer loads of these families for the two periods, because they averaged 4.8 loads weekly at the launderette compared to 7.9 loads weekly during Phase I.

The weekly cost averaged almost \$2.00 more at the launderettes than when all laundering was done at home. The average cost of laundering at home for these six families was 70 cents lower than for all 24 families participating in the comparisons with full-service commercial laundries. Two of the six families had an automatic washer and two families had a dryer.

Five of the six families considered the launderette to be satisfactory from the standpoint of convenience even though they did express some inconvenience because of the need to transport bundles of clothes. The opportunity to dovetail laundering with shopping and to have other family members deliver and pick up laundry gave added flexibility.

The articles washed at the launderettes were generally rated "good" by all families. One or two less satisfactory ratings each were given in relation to folding, wrinkles, fading, soiled collars and cuffs, and softness.

Summary

A selected group of families laundered at home and used the services of commercial laundries to provide information on costs in time and money and on the advantages or disadvantages of various alternatives for laundering. The 24 families cooperated over a 12-week period,

laundering at home and using three different arrangements or plans for commercial service for three weeks each. Six of the families cooperate for another two weeks in the use of launderettes, the self-operated or limited-service establishments available to wash and dry the laundry. Eight of the 24 homemakers were employed outside the home half-time or more. The families owned various combinations of automatic and non-automatic equipment.

For these families, the cost of laundering at home averaged \$2.00 weekly. Half of this cost was for the investment in equipment and half for current operating expense. The weekly cost varied, of course, with the equipment owned and was higher than the average if a dryer were used. If no dryer were used, the equipment cost was somewhat less than average with an automatic washer and less than half the average cost with a non-automatic washer. A charge for related housing facilities such as water heaters or a charge for the family's labor were not included.

The cost of laundering increased as commercial services were added. When the families sent out flat work to be finished, the combined cost for this service and for doing the rest of the laundry at home was \$4.83 or somewhat more than twice as high as when all was done at home. For the two other commercial plans, the families were asked to send out all items they possibly could to the commercial laundries. The items sent out were partially finished in one case, the flat work and shirts being finished and the rest of the laundry rough- or fluff-dried. In the other case, all of the items sent out were finished. The average weekly cost of laundering when all possible items were sent out to commercial laundries was \$7.54 for partially finished and \$12.44 for fully finished laundry.

Of the commercial plans, the cost per item laundered was least when all items were sent out and partially finished. The costs for these various plans were essentially the same for employed and full-time homemakers, and any differences in connection with the equipment owned were inconsistent.

The families used an average of 5.1 hours weekly in laundering at home, and half of this time was used in ironing. The time used by all families was lower with each addition of commercial service. During the period when all items were sent out to be fully finished, the time used in all laundering activities was reduced to 3.0 hours. The greatest time-saving was in ironing, a reduction from 2.6 hours to one hour. Those families in which the homemaker was employed and those using a non-automatic washing machine and no dryer reduced their total time in laundering the most.

The homemakers evaluated the commercially finished items somewhat higher than their own for only three conditions---whiteness, softness, and freedom of the colored articles from soiled areas such as collars and cuffs. Compared to their own results, the homemakers gave lower ratings to the commercial product more often for fading, wrinkling, shrinkage, lint and folding. The opportunity to save time was the most important advantage the homemakers reported in the use of commercial services, and the expense was the major disadvantage. The quality of service and consideration received from the commercial laundries was satisfactory in all but one case.

The six families averaged the same weekly time in using launderettes as when doing all of it at home. The expense of using launderettes was higher, however. For these families, doing all laundering at home averaged \$1.31 weekly compared to \$3.26 weekly when launderettes

were used for washing and drying. A transportation charge of 8 cents a mile would have increased the cost 40 percent for these families if trips to the launderettes were not combined with other errands.

The families who cooperated in the study became more aware of their own procedures and of the possibilities for making use of commercial services in their laundering. From their experiences in this study, these families helped to clarify for themselves as well as for others the choices available to them in laundering.

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Table 1. Family Composition and Home Laundering Facilities

Family composition	Total	Home laundering facilities of families			
		Automatic washer		Non-automatic washer	
		With dryer	Without dryer	With dryer	Without dryer
Number					
<u>Families</u>	24	9	7	4	4
With employed homemaker	8	3	3	1	1
With full-time homemaker	16	6	4	3	3
By size:					
Three	2	0	1	0	1
Four	11	6	2	2	1
Five	7	1	3	1	2
Six	3	1	1	1	0
Seven	1	1	0	0	0
<u>Children</u>	61	23	18	11	9
By ages:					
Less than 2 years	1	0	0	1	0
2-5 years	19	9	7	3	0
6-12 years	28	13	6	6	3
Over 12 years	13	1	5	1	6

Table 2. Costs of Ownership of Home Laundering Equipment by Items of Expense.

Items of expense	Number of families	Average weekly cost
<u>Washing and drying equipment*</u>		
Investment in:		
Automatic washers	16	\$.39
Non-automatic washers	8	.25
Dryers	13	.39
Other equipment	24	.02
Interest foregone	24	.20
Service and repairs:		
Automatic washers	16	.10
Non-automatic washers	8	.04
Dryers	13	.02
Total	24	\$.88
<u>Ironing equipment*</u>		
Investment in:		
Steam and dry irons	24	\$.03
Ironers	3	.28
Other equipment	24	.02
Interest foregone	24	.01
Service and repairs	24	.01
Total	24	\$.10

* One of the 8 families received its washer as a gift in 1939 and 4 of the 24 families received irons as gifts. "Other equipment" for washing and drying includes lines, racks, baskets, hampers, portable tubs, carts, etc., and "other equipment" for ironing includes ironing boards, sprinklers, cord minders, pants creasers, etc.

Table 3. Current Operation Cost of Laundering at Home

Operation cost	Number of families	Phase of study			
		I	II	III	IV
Average weekly cost					
<u>Major equipment owned</u>					
Automatic washer:					
With dryer	9	\$1.49	\$1.01	\$.52	\$.53
Without dryer	7	.57	.42	.25	.22
Non-automatic washer:					
With dryer	4	1.26	.91	.18	.27
Without dryer	4	.53	.40	.26	.19
<u>Items of expense</u>					
Equipment operation:					
Automatic washers	16	\$.06	\$.04	\$.02	\$.02
Non-automatic washers	8	.02	.01	*	*
Dryers	13	.53	.34	.11	.14
Irons and ironers	24	.07	.07	.04	.03
Water use:					
Water and sewage	18	.13	.09	.05	.05
Softening	4	.05	.04	.01	.02
Heating	24	.15	.10	.06	.06
Supplies	24	.36	.25	.12	.11
Total	24	\$1.02	\$.72	\$.34	\$.34

* Less than .5 of one cent.

Table 4. Costs of Laundering at Home and Commercially by Equipment Owned

Laundering situation and equipment owned	Phase of study			
	I	II	III	IV
Average weekly cost				
<u>Laundering at home</u>				
Automatic washer:				
With dryer	\$2.73	\$2.25	\$1.77	\$1.77
Without dryer	1.44	1.28	1.12	1.08
Non-automatic washer:				
With dryer	2.50	2.14	1.42	1.51
Without dryer	.85	.73	.58	.51
All families	\$2.00	\$1.70	\$1.32	\$1.32
<u>Laundering commercially</u>				
Automatic washer:				
With dryer		\$2.95	\$6.91	\$11.45
Without dryer		3.07	6.00	9.28
Non-automatic washer:				
With dryer		2.79	5.06	9.71
Without dryer		3.96	6.21	15.05
All families		\$3.13	\$6.22	\$11.13

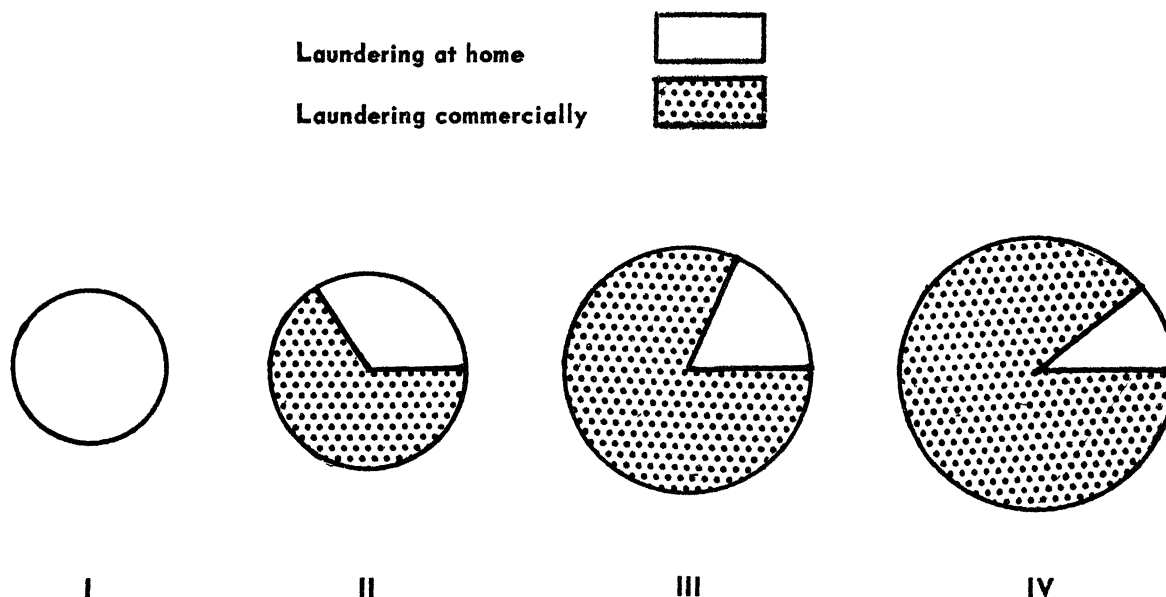


Figure 1. As commercial services were added, the total cost of laundering increased.

Table 5. Costs of Laundering at Home and Commercially by Homemaker Employment.

Laundering situation and homemaker employment	Phase of study			
	I	II	III	IV
Average weekly cost				
<u>Laundering at home</u>				
Employed homemakers	\$1.88	\$1.55	\$1.22	\$1.21
Full-time homemakers	2.06	1.77	1.37	1.37
All families	\$2.00	\$1.70	\$1.32	\$1.32
<u>Laundering commercially</u>				
Employed homemakers		\$ 3.09	\$ 6.09	\$11.36
Full-time homemakers		3.15	6.29	11.04
All families		\$ 3.13	\$6.22	\$11.13

Table 6. Total Time Used by all Family Members in Laundering at Home and Commercially by Equipment Owned

Laundering situation and equipment owned	Phase of study			
	I	II	III	IV
Average weekly hours				
<u>Laundering at home</u>				
Automatic washer:				
With dryer	5.7	4.5	2.6	2.4
Without dryer	4.5	4.4	2.3	1.5
Non-automatic washer:				
With dryer	3.7	3.2	1.5	.9
Without dryer	6.4	5.3	4.3	2.6
All families	5.1	4.4	2.6	1.9
<u>Laundering commercially</u>				
Automatic washer:				
With dryer		.4	1.1	1.1
Without dryer		.4	1.1	.9
Non-automatic washer:				
With dryer		.3	1.0	1.0
Without dryer		.6	1.1	1.2
All families		.4	1.1	1.1

Table 7. Total Time^{Used} by all Family Members in Laundering at Home and Commercially by Homemaker Employment

Laundering situation and homemaker employment	Phase of study			
	I	II	III	IV
Average weekly hours				
<u>Laundering at home</u>				
Employed homemakers	5.0	3.9	2.2	1.2
Full-time homemakers	5.2	4.6	2.8	2.3
All families	5.1	4.4	2.6	1.9
<u>Laundering commercially</u>				
Employed homemakers		.5	1.3	1.2
Full-time homemakers		.4	1.0	1.0
All families		.4	1.1	1.1

Table 8. Total Time Used in Laundering at Home and Commercially by Major Jobs

Major jobs	Phase of study			
	I	II	III	IV
Average weekly hours				
Washing and drying	1.4	1.0	.6	.5
Ironing	2.6	2.5	1.6	1.0
Commercial and other*	1.1	1.3	1.5	1.5
Total	5.1	4.8	3.7	3.0

* Includes time used in gathering clothes together and treating them; itemizing and arranging for commercial services; checking, folding and putting away finished articles. All time related to the use of commercial service is included here.

Table 9. Homemaker Evaluations of Laundered Items.

Evaluation factors	Ratings good or excellent		Change
	Phase I	Phase IV	from
	Per cent of homemakers		Phase I
<u>Appearance or condition</u>			
White items:			
Whiteness	79	88	+8
Freedom from-			
Streaks	100	96	-4
Soiled collars, cuffs	96	88	-8
Spots, stains	92	87	-5
Lint	88	67	-21
Shrinkage	96	71	-25
Rips, tears	100	87	-13
Colored items:			
Cleanliness	100	96	-4
Absence of fading	100	58	-42
Freedom from-			
Streaks	100	92	-8
Soiled collars, cuffs	88	92	+4
Spots, stains	88	87	-1
Lint	78	71	-7
Shrinkage	100	77	-23
Rips, tears	100	91	-9
<u>Finish</u>			
Ironed items:			
Absence of wrinkles	96	50	-46
Absence of scorched areas	96	82	-14
Folding:			
Size, shape	100	79	-21
Creases--straightness and location	93	77	-16
Unironed items:			
Absence of wrinkles	83	78	-5
Softness	67	70	+3
Folding:			
Size, shape	100	78	-22
Creases--straightness and location	98	87	-11

Table 10. Comparisons in Time and Money of Laundering at Home and With Commercial Services Per Item Laundered

Comparison	Phase of study			
	I	II	III	IV
	Number			
Items laundered weekly per family:				
At home	143	105	47	51
Commercially	—	30	89	89
Total	<u>143</u>	<u>135</u>	<u>136</u>	<u>140</u>
Cost per item laundered:				
	Cents			
At home	1.4	1.6	2.8	2.6
Commercially	—	10.3	7.0	12.5
At home and commercially	1.4	3.6	5.5	8.9
Time used per item laundered:				
	Minutes			
At home	2.2	2.5	3.3	2.2
Commercially	—	.9	.7	.7
At home and commercially	2.2	2.1	1.6	1.3

Table 11. Comparisons in Time and Money of Laundering
at Home and Using Launderettes (Six families).

Phase of study	Hours	Dollars
Weekly average		
<u>Laundering at home</u>		
Washing and drying	1.6	\$1.13
Ironing	2.9	.18
Other	1.0	—
Total	5.5	\$1.31
Per load	.7	.17
<u>Using launderettes</u>		
Washing and drying at launderette	.6	\$2.94*
Washing and drying at home	.3	.13
Ironing	3.4	.19
Other	1.2	—
Total	5.5	\$3.26
Per load	1.1	.67

* An allowance for transportation at 8 cents a mile would add \$1.35 to this total.